On December 8, 1869, Lapham petitioned Congress to inaugurate a system of forecasts, reciting the losses of men and ships in storms on the Great Lakes and the success of the French weather service which organized a telegraphic weather service with maps in 1855 (Cong. Doc. Ser. No. 1431, Doc. 10). The bill requested by Lapham was introduced by Congressman H. E. Paine of the First Wisconsin (Milwaukee) District on December 14, 1869, and became law on February 9, 1870 (16 Stat. 369).

The Wisconsin Historical Society possesses a holographic letter from Abbe to Lapham dated January 7, 1870, acknowledging Lapham's authorship of the legislation in the words, "I must express the pleasure experienced in realizing the energy with which you are pushing the matter of a telegraphic meteorological system of storm warnings."

The society also has the holographic commission appointing Lapham assistant to the chief signal officer of the United States on November 8, 1870, signed by the chief signal officer, Albert J. Myer. According to the Annual Report of the Chief Signal Officer for 1871, Lapham had "supervision of the signal service on the lakes" (page 7), and Lapham's report in the same volume (page 167) shows that he issued a storm warning on the day of his appointment and continued making weather maps for forecasts until the end of the season of navigation.

The appointment of Abbe to a similar position at Washington took place on January 3, 1871 (*ibid.*, page 8) and he began forecasting on February 19, 1871, 103 days after Lapham.

It is also interesting to note that this society has two weather maps issued by Abbe for the Cincinnati Board of Trade and similar to those issued by the Western Union Telegraph Company at Cincinnati in continuation of Abbe's maps (see W. H. Alexander, "A Climatological History of Ohio," Columbus, 1923, pages 24–25). None of these maps contains isobars, forecasts or other "analysis." Only data of temperature and wind direction are given.

For a fuller account of Lapham and his contributions, reference is made to Eric R. Miller, "New Light on the Beginnings of the Weather Bureau from the Papers of Increase A. Lapham," *Monthly Weather Review*, February, 1931.

EDWARD P. ALEXANDER,
Director

STATE HISTORICAL SOCIETY,
MADISON, WIS.

A RELATIONSHIP BETWEEN DENTAL CARIES AND SALIVA

A CLEAR relationship has been discovered between the rate of starch hydrolysis by saliva and the incidence of caries in the individual. Without exception among those studied, individuals with extensive caries (twenty or more cavities) produce saliva which hydrolyzes starch under standard test conditions with extreme rapidity. Individuals without caries produce saliva which hydrolyzes starch very slowly.

In 51 careful case studies at the Forsyth Dental Infirmary and at Radcliffe College no one has been found whose salivary reaction is out of line. Table 1 reflects the data accumulated to date:

TABLE 1

Number of individuals	Number of cavities	Average time
4	0	44.5 min.
6	1 to 3	36.5 "
8	4 to 6	18.5 "
14	7 to 9	8.7 "
13	10 to 12	6.8 "
2	13 or 14	4.0 "
2	20 or 21	1.8 "
2	32 or 33	1.0 "

A more detailed report upon this investigation is in preparation and will appear later with speculations on fluoride and amino acid in relation to the caries problem.

NAOMI C. TURNER
EDWARD M. CRANE

CHEMICAL LABORATORY,
RADCLIFFE COLLEGE

THE USE OF RHODIUM IN BLOOD CHEMISTRY

A YEAR ago I noticed the symbol "Rh" used in a biochemical abstract. Working on the "Bibliography of the Metals of the Platinum Group," I wondered about the use of rhodium in blood chemistry, and following it up I received the following from Dr. Levine: "Although I agree with you in general, it is nevertheless difficult to assign names to substances of biological activity which are not duplicated in another branch. There are a number of agglutinable factors identified by the letters A, B, O, M, N and P. We couldn't use the letter R because this was previously used instead of O. The letters Rh seemed indicated, since it followed the alphabetical arrangement of other blood factors and at the same time shows its relationship to a blood factor in macacus rhesus."

As it seemed probable that this symbol would be used only in biochemical publications, there would be little probability of any confusion, but *Science News Letter* for November 27 has a half page article on a "New Blood Test," in which "Rh" occurs more than a dozen times, in such expressions as "Rh factor," "Rh blood" and even "Rh husbands." As "Rh" has been used as the symbol for the metal rhodium for more than a century, and has at least been seen by every

student of chemistry, it would seem better to give the Rhesus monkey's blood factor some other symbol. After reading the article in question some sufferers from "conjugal childlessness," with knowledge of chemistry but not biochemistry, might hope to effect a cure by injections of colloidal rhodium.

JAS. LEWIS HOWE
WASHINGTON AND LEE UNIVERSITY

AN INTERESTING REFERENCE TO LENGTH OF DAY AS AFFECTING PLANTS

DR. S. F. BLAKE, of the U. S. Department of Agriculture, has called my attention to an interesting reference in which length of day is considered a factor affecting the distribution of plants.

Arthur Henfrey, in his book "The Vegetation of Europe," published in 1852, discusses the flora of the British Islands in relation to the flora of Continental Europe. On page 169, he discusses the ranges of different groups as affected by various factors of climate, including maritime and continental influences.

It is interesting that he recognizes one portion of British plant life as apparently dependent upon length of day or the amount of direct sunlight, rather than upon mean temperature or other conditions of the climatic complex. Such plants, he theorizes, are circumscribed by lines which coincide with the parallels of latitude.

It is apparent in this theorem, which he had amplified no farther by discussion or experimental data, that Henfrey plainly saw the implications of length of day in the natural distribution of plants. His ideas, however, appear to have gotten no farther than the stage of philosophical statement. It was not until 1920, about sixty-eight years later, that our present experimental knowledge of length of day began.

H. A. ALLARD
U. S. DEPARTMENT OF AGRICULTURE

SCIENTIFIC BOOKS

BELOVED SCIENTIST: ELIHU THOMSON

Beloved Scientist: Elihu Thomson, a Guiding Spirit of the Electrical Age. By DAVID O. WOODBURY. With a foreword by OWEN D. YOUNG. xiii + 358 pp. 16 plates. Whittlesey House, McGraw-Hill Book Co., 1944. $3.50.

A REALLY good and lovely biography is a much rarer thing than a good and lovely life, so much richer is nature than man's art. Here is an extraordinarily good biography of one of the less widely popularized, but very potent figures in that generation of adventurers, discoverers and inventors who brought on what we call "the electrical age."

The subject of this book has all the marks of a Horatio Alger hero, but with the additional realism of association with many other such heroes who were his predecessors or competitors in the electrical age. By what amounts almost to a stroke of genius this biography is entitled "Beloved Scientist," for it characterizes so perfectly the amiable personal qualities which distinguished Elihu Thomson from many other inventors of his period and which greatly endeared him to all who knew him.

This book contains a most interesting account of the principal inventors of the "Electrical Age." It is much more than a biography of one person, for it is really a history of the electrical industry and its founders. Here one finds intimate and yet full-length word portraits of Edison, Brush, Westinghouse, Steinmetz, Pupin, Lempe, Van Depole, Maxwell, Kelvin, Tyndall, Gramme, Helmholtz, Crooks, Hertz, Roentgen, Silvanus Thompson and Marconi. The book is full of sketches of significant and yet little known events in the lives and labors of many of these men.

So far as Elihu Thomson is concerned he fits into this assemblage as one of the most interesting and inspiring of them all. His youthful precocity, his years of laboratory experiments in his own home, his high-school career as student and later as teacher and professor and finally his great career as inventor are described in a most interesting manner. His interest is shown not merely in electricity but in almost everything that he observed in nature or art. His curiosity regarding the causes of things was universal; for example, he made experiments to find out how laughing gas produces anesthesia and concluded that it was due to the absence of oxygen necessary for cerebral activity. He had little faith in the ordinary practitioner of medicine and always insisted on knowing why certain prescriptions were given—usually without getting a satisfactory answer, which then stirred him up to make experiments of his own.

While he was still in the Central High School of Philadelphia he was greatly interested in photography and in making lenses for microscopes and telescopes. He also began experiments on what we would now call a telephone. After he had joined the teaching staff at the high school his experiments extended to everything in connection with electric energy and its utilization. One extraordinary experiment of his has been commemorated at the Benjamin Franklin High School by a tablet which states, "This is the birthplace of wireless, 1875"; for there he found that electric waves were transmitted through the air and through